

FIG. 2

Object#	Memory Block	InUse Flag	Object Type	Obj Link
1	30 byte block	In Use	Frame	
2	30 byte block	In Use	GridLayout	
3	30 byte block	In Use	Container	
4	30 byte block	In Use	Component	6
5	30 byte block	Free	n/a	
6	30 byte block	In Use	Component	0
•	•	•	•	
n	30 byte block	Free		

FIG. 3

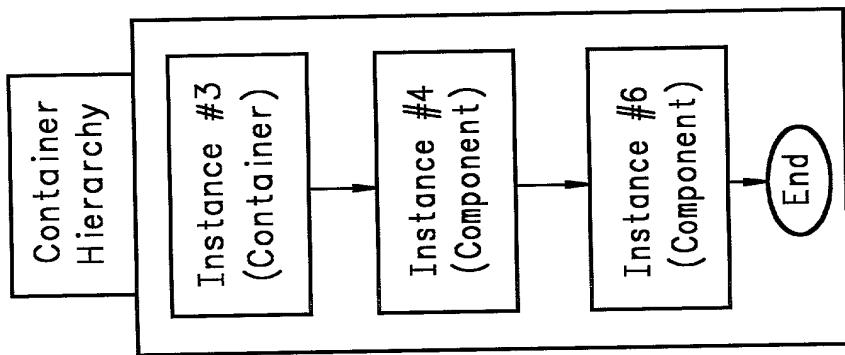
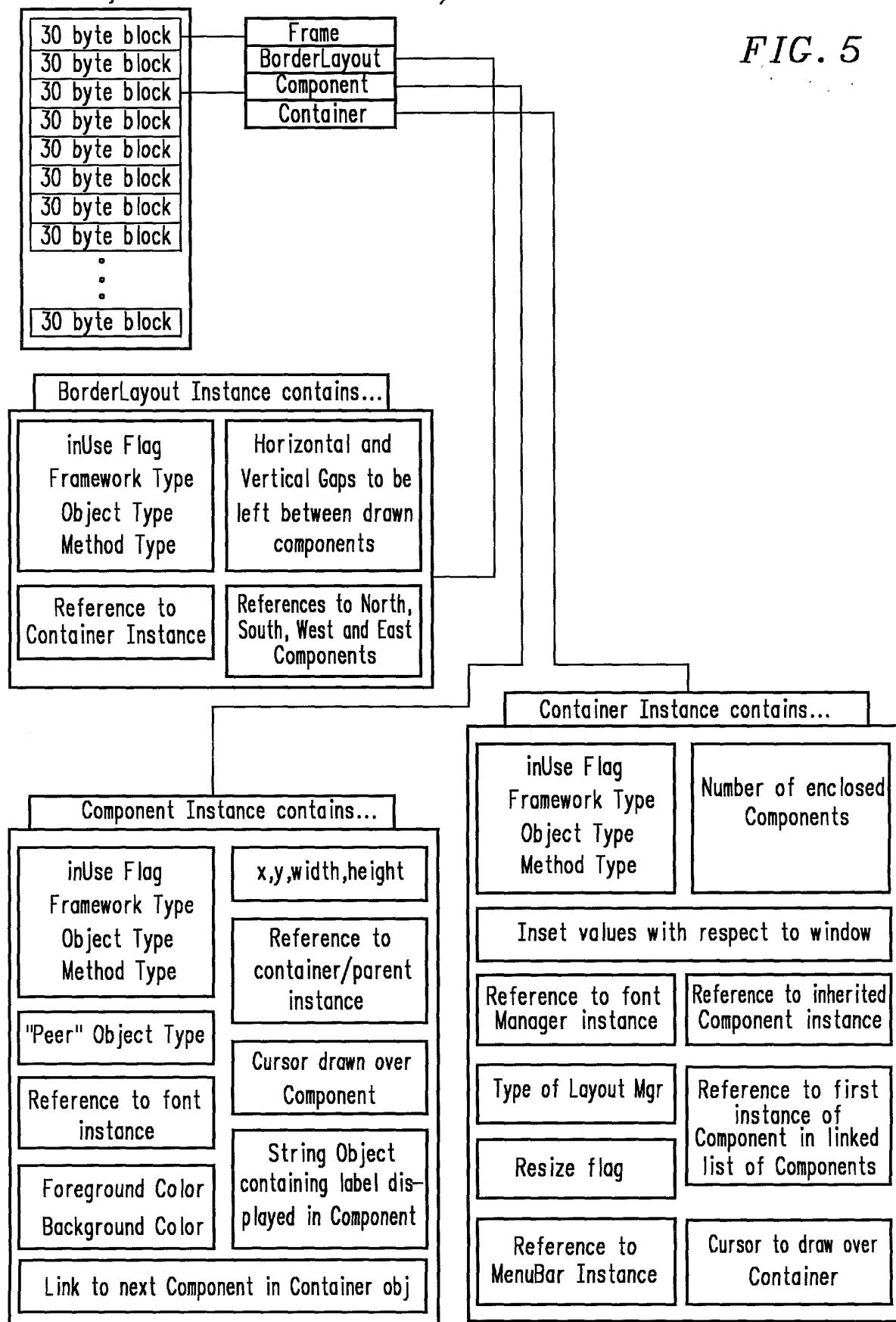


FIG. 4

FIG. 5



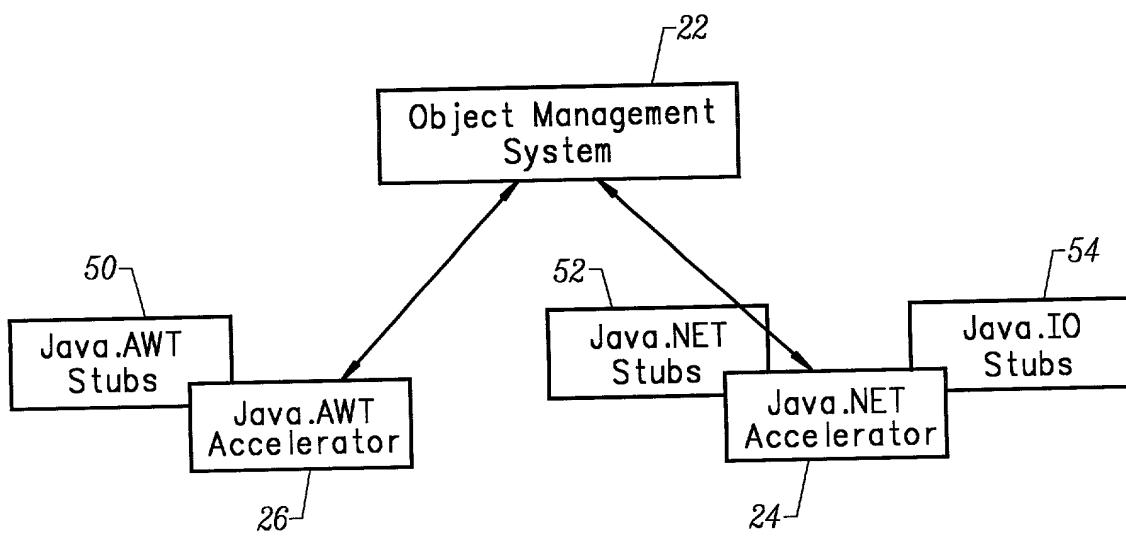


FIG. 6

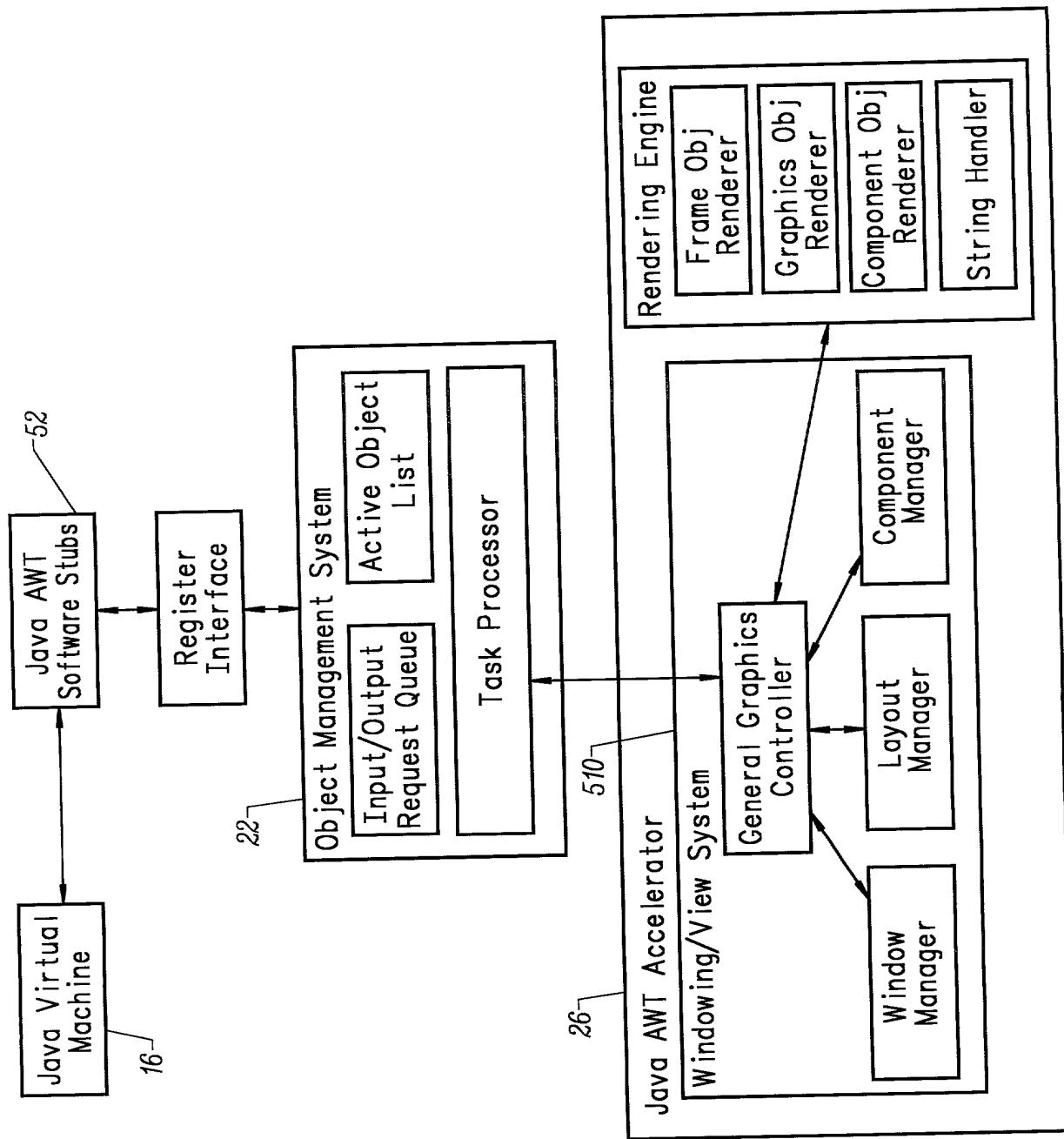


FIG. 7

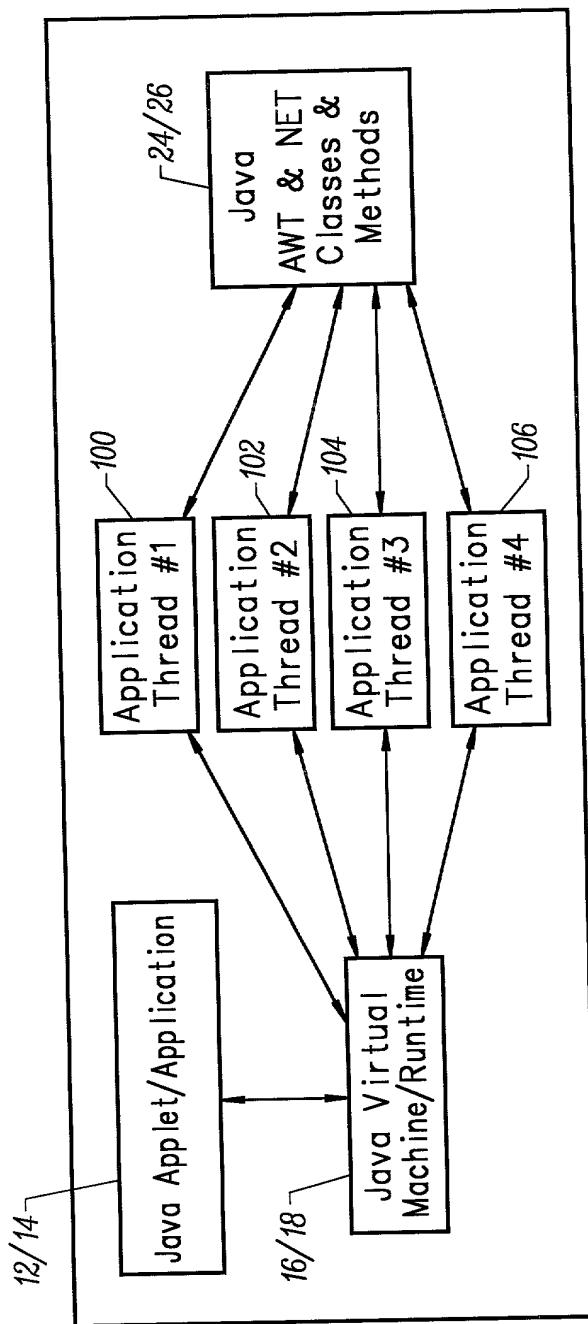


FIG. 8

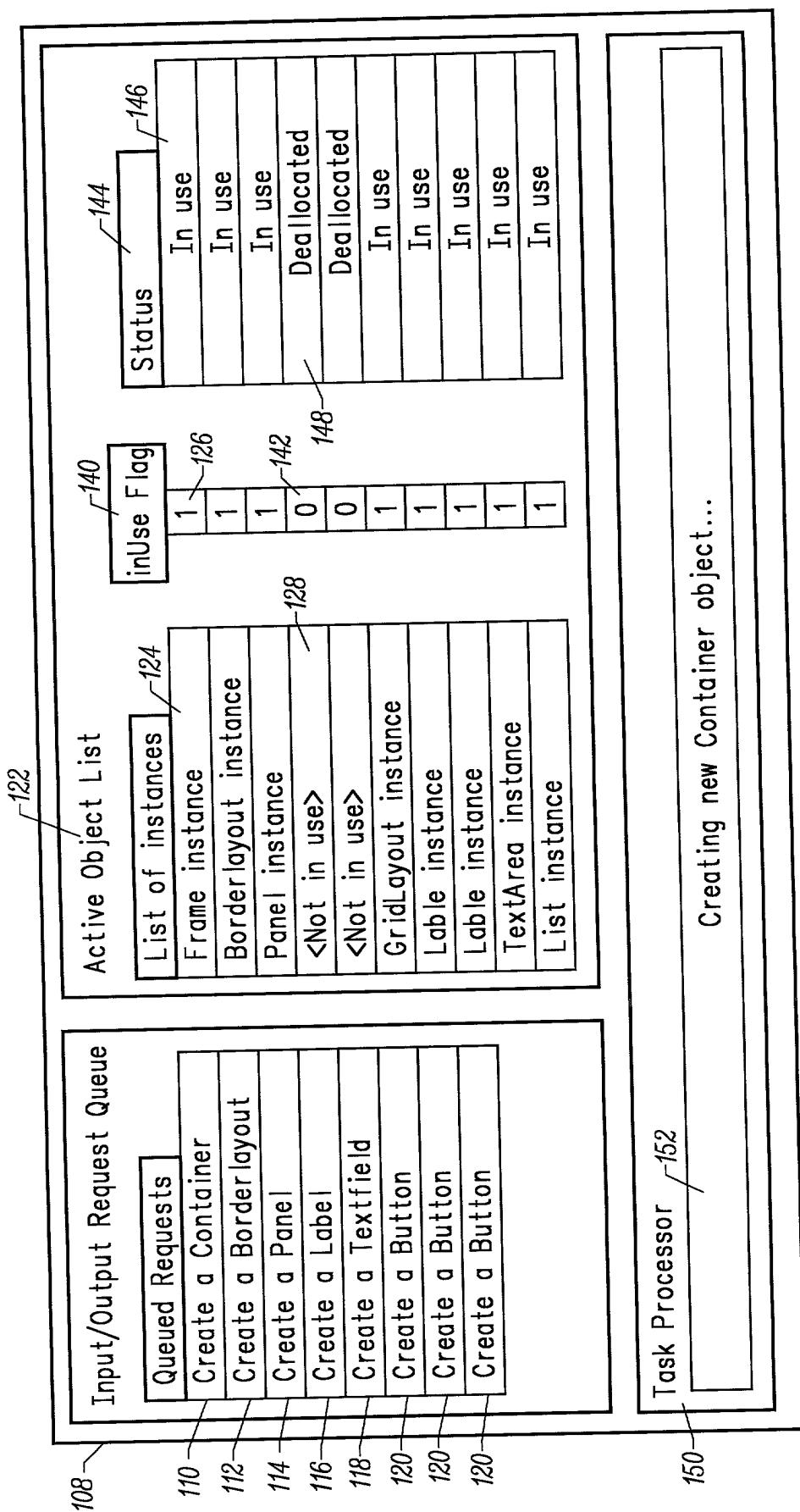
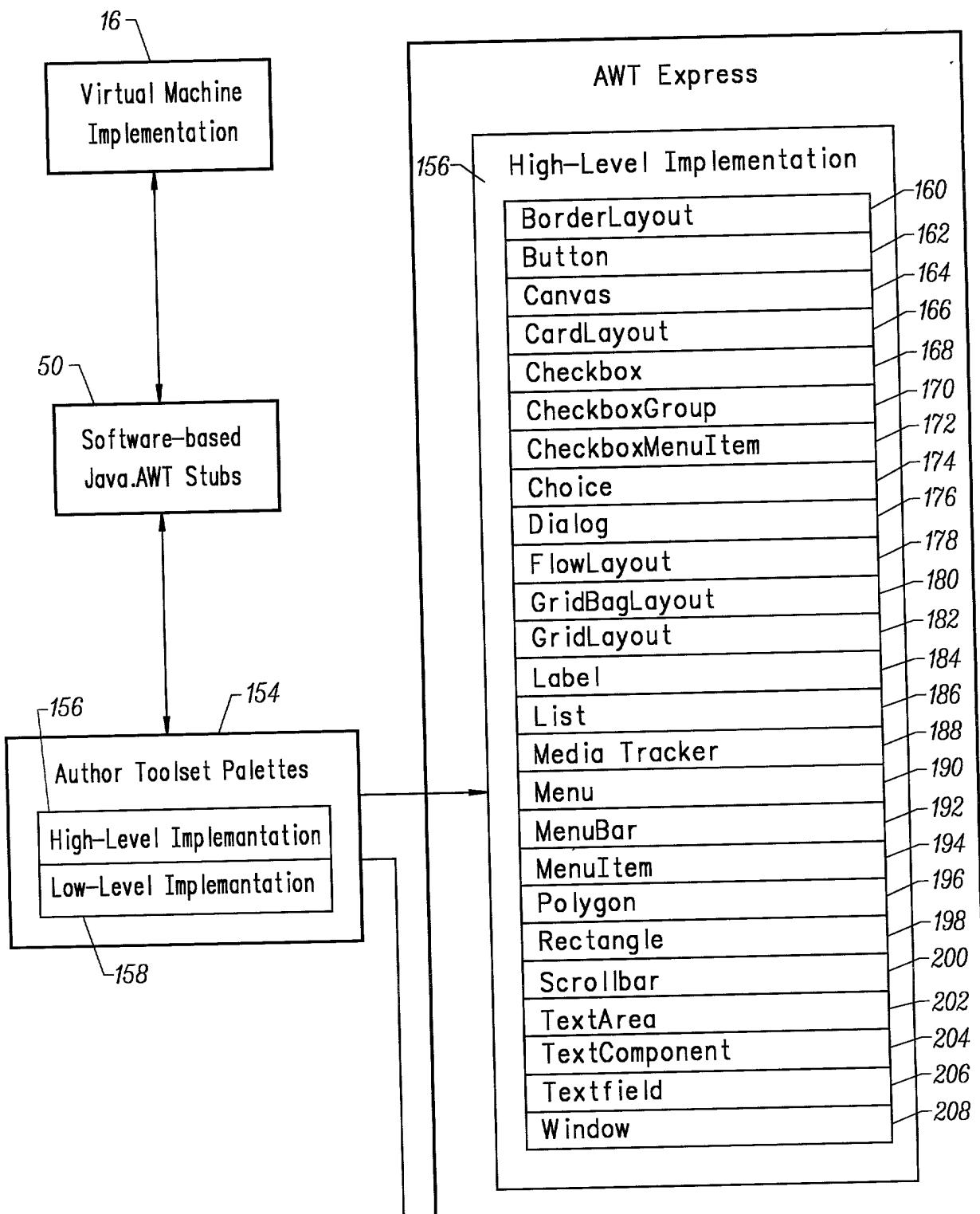


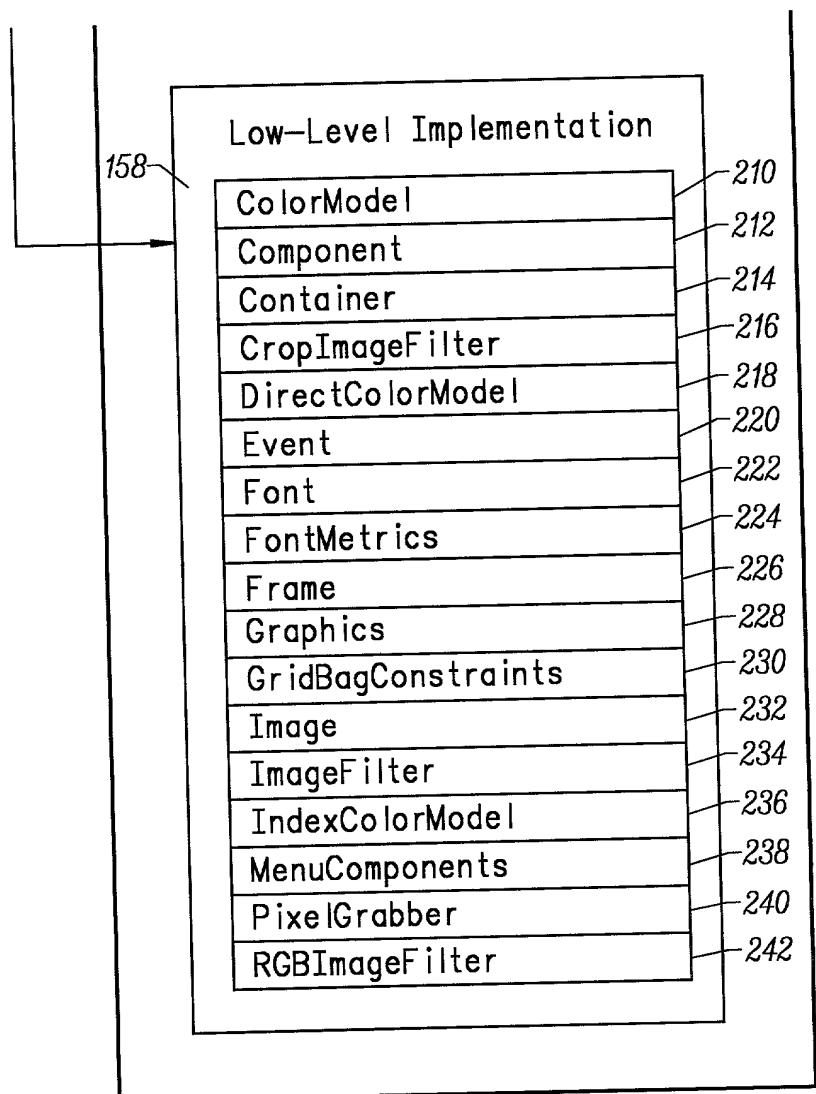
FIG. 9



See FIG. 10B

FIG. 10A

See FIG. 10A

*FIG. 10B*

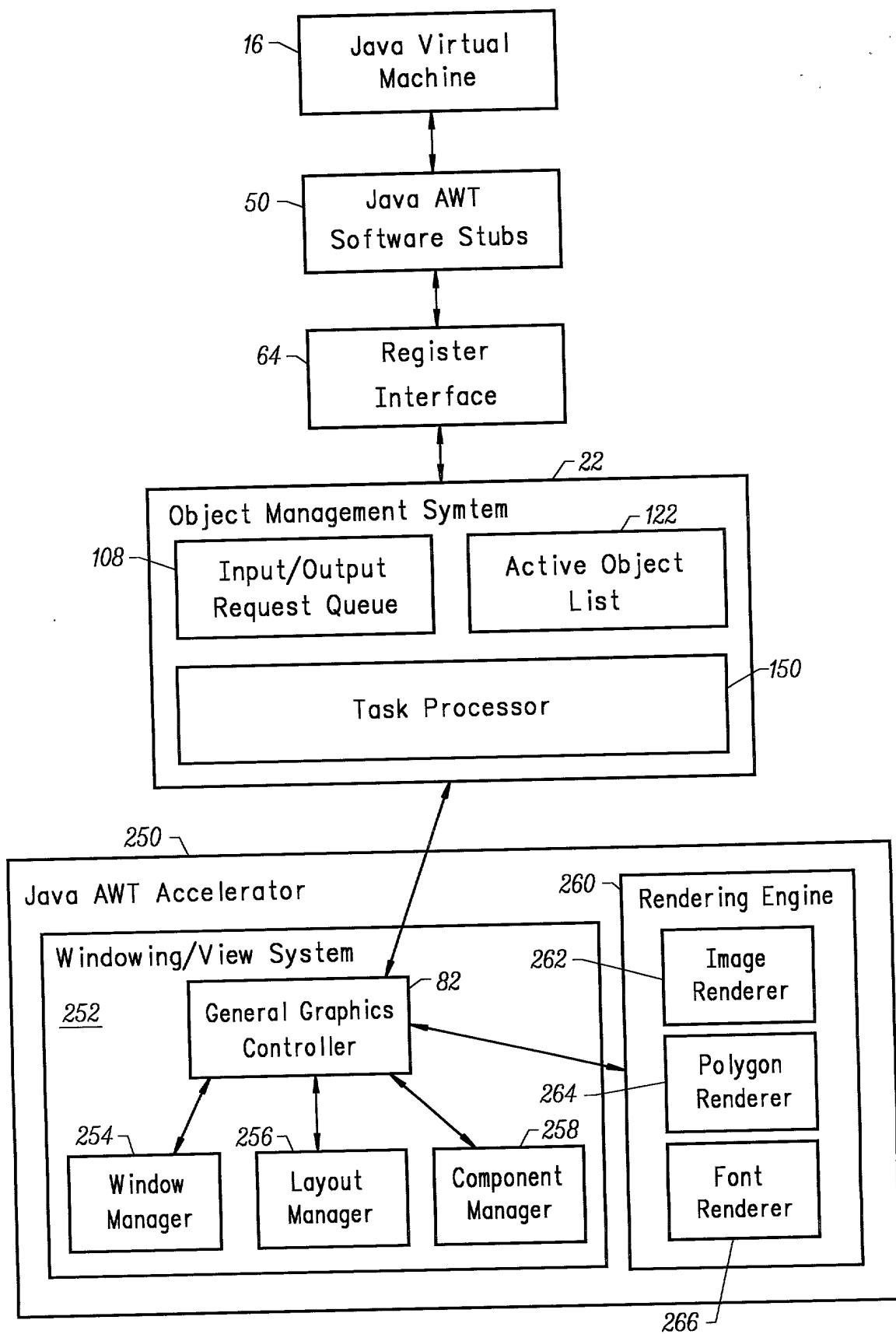
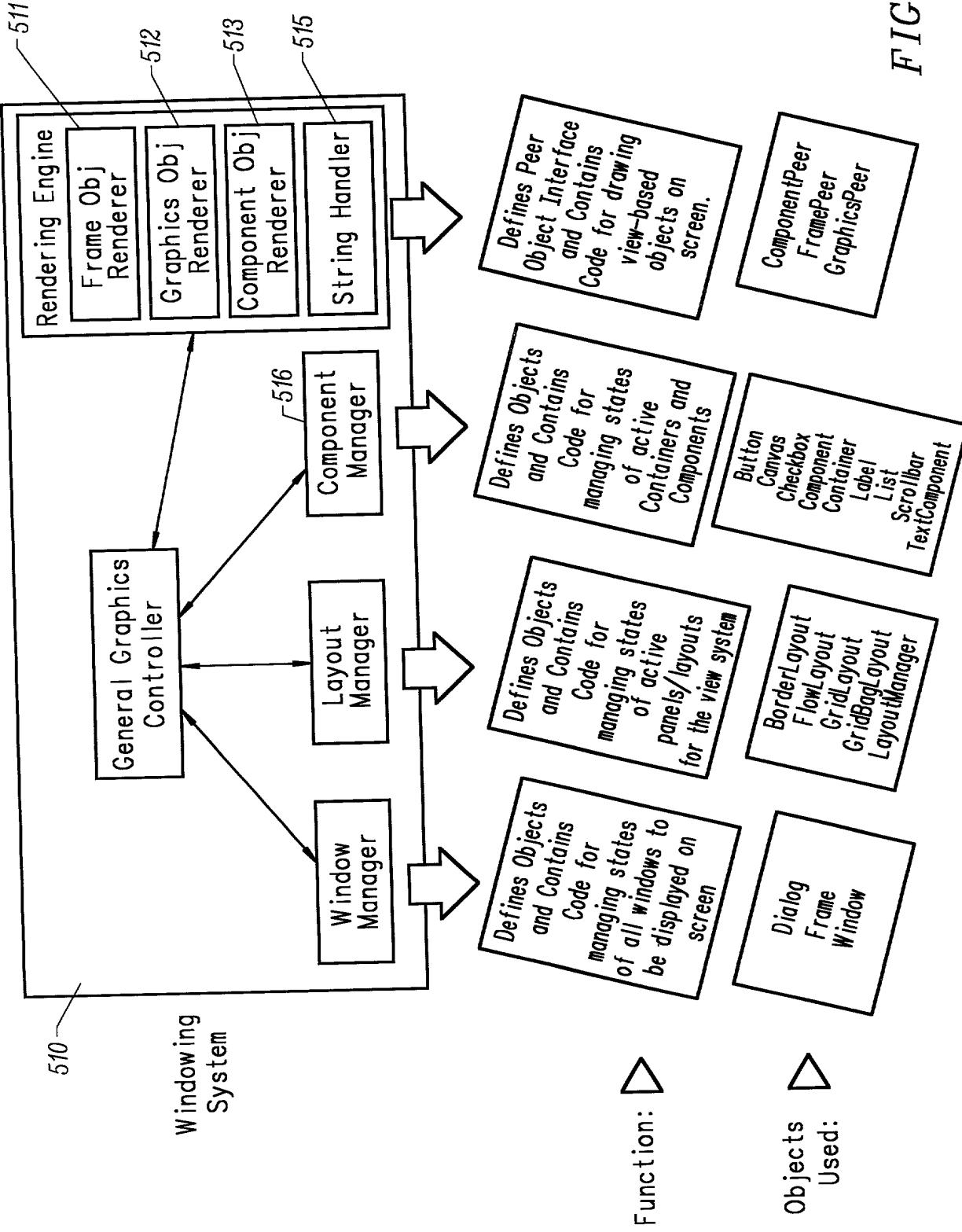


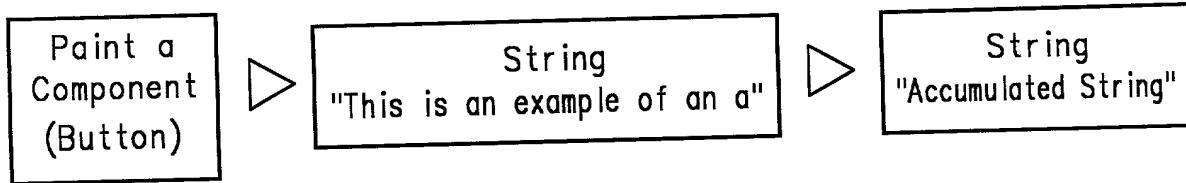
FIG. 11



Components supported by the Rendering Engine			
Button	Choice	List	TextArea
Canvas	Dialog	Menu	Textfield
Checkbox	Label	ScrollBar	

FIG. 13

The commands:



The result:

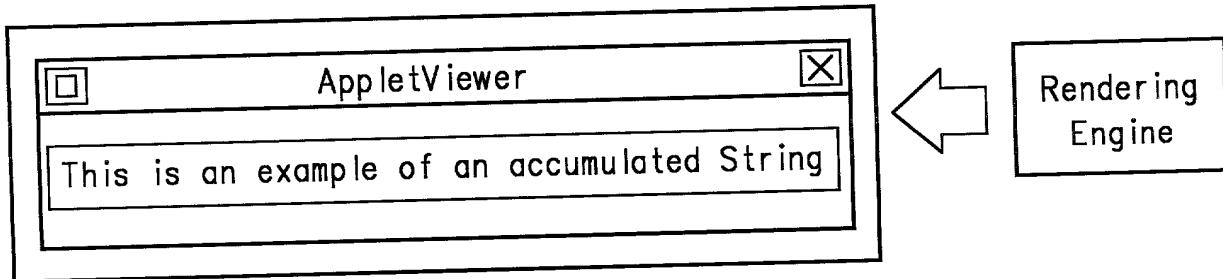


FIG. 14

Painting Methods:

clearRect
clipRect
copyArea
draw3DRect
drawArc
drawLine
drawOval
drawPolygon

Other Methods:

drawRect
drawRoundRect
fill3DRect
fillArc
fillOval
fillPolygon
fillRect
fillRoundRect

setFont
setPaintMode
translate

FIG. 15

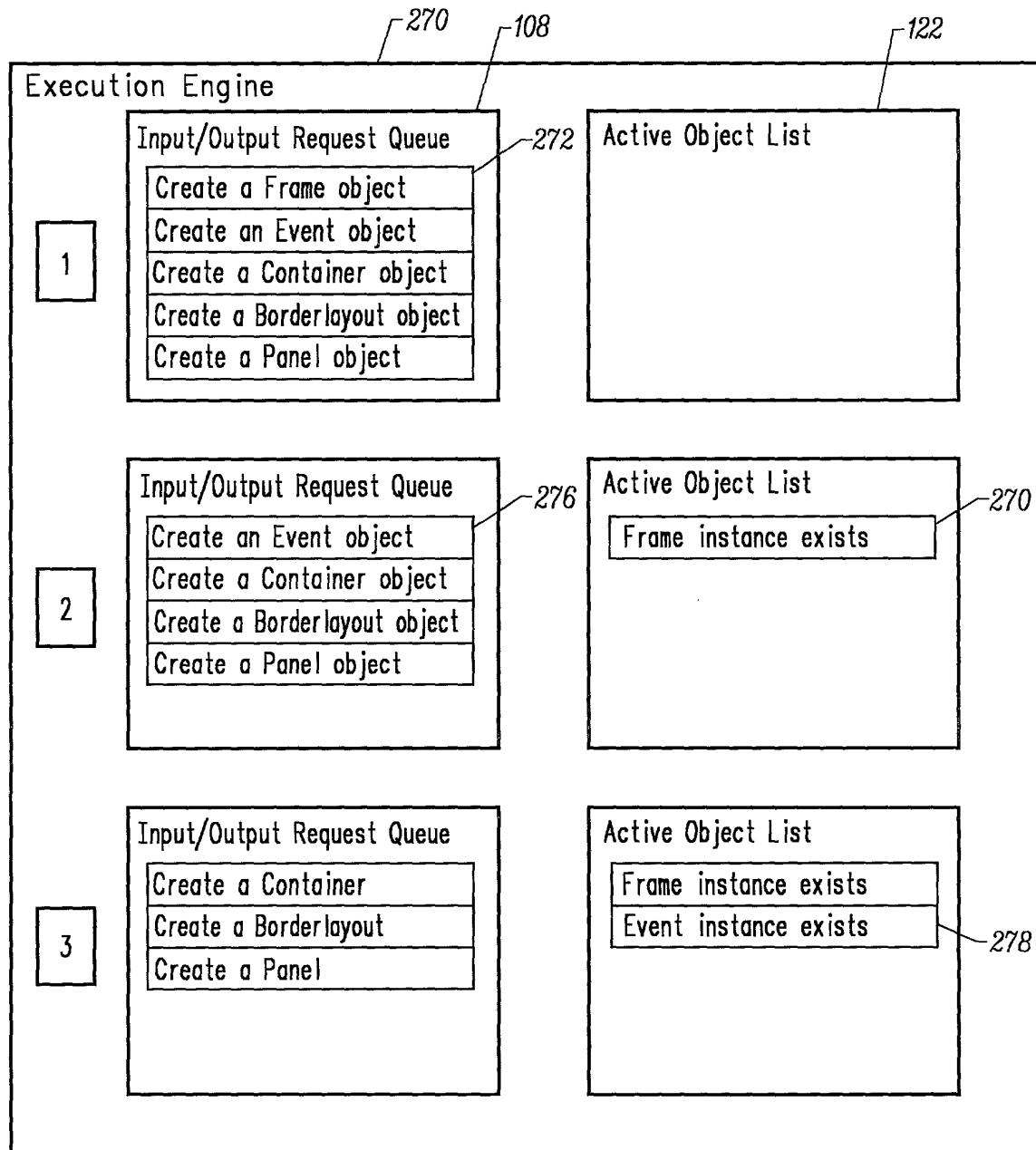


FIG. 16

Windowing/View System

General Graphics Controller

Creates Frames (i.e. windows)
 Creates Components (i.e. views)
 Passes image data to Image Renderer
 Passes text to Font Renderer
 Passes shapes to Polygon Renderer
 Allows selection (focus) for frames and components
 Deletes frames and components physically from display
 Traverses object hierarchy when a paint method in a view is called
 Handles mouse and keyboard events "passing" them down
 through a chain of frames and components

Window Manager

Draws windows using polygon draws in the Polygon Renderer
 Manages windows so they can overlap
 Determines frames that event occurred in and notifies appropriate layout manager
 instance that it may need to update
 Oversees container hierarchies within each frame

Layout Manager (belongs to / is referenced by a frame)

Manages container hierarchies within a frame's scope
 Determines container that event occurred in and tells it to update if necessary

Component Manager (belongs to/is referenced by a LayoutManager/Container)

Manages component hierarchies within a container's scope
 Determines component that event occurred in and tells it to update if necessary

FIG. 17

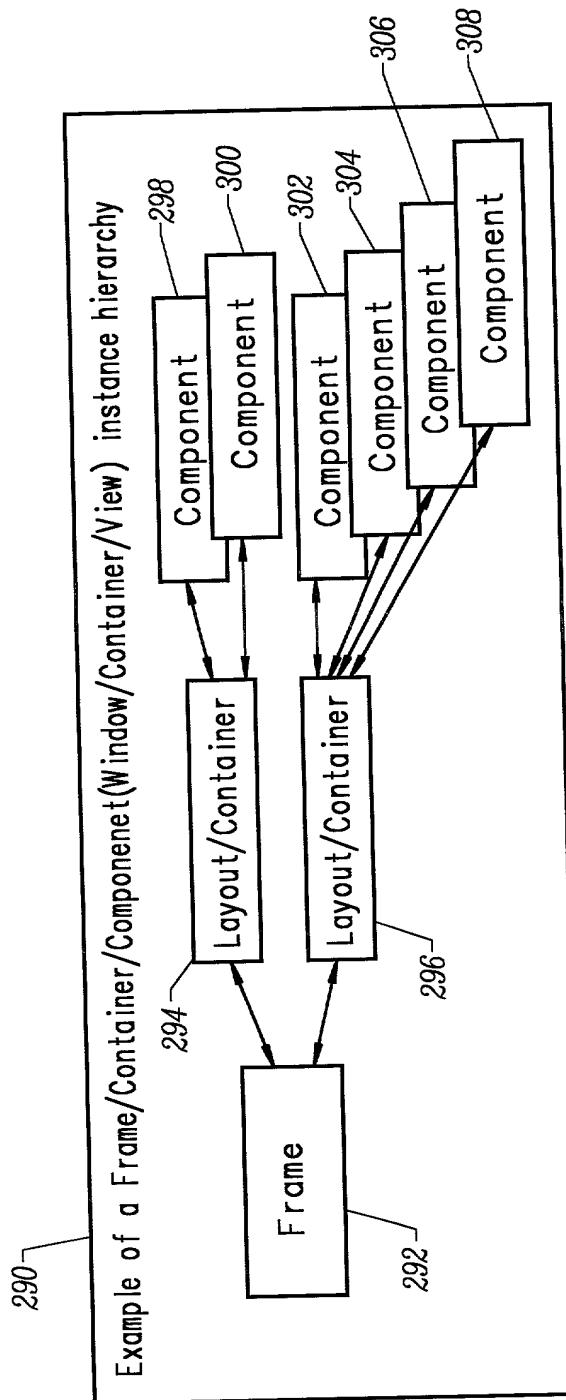


FIG. 18

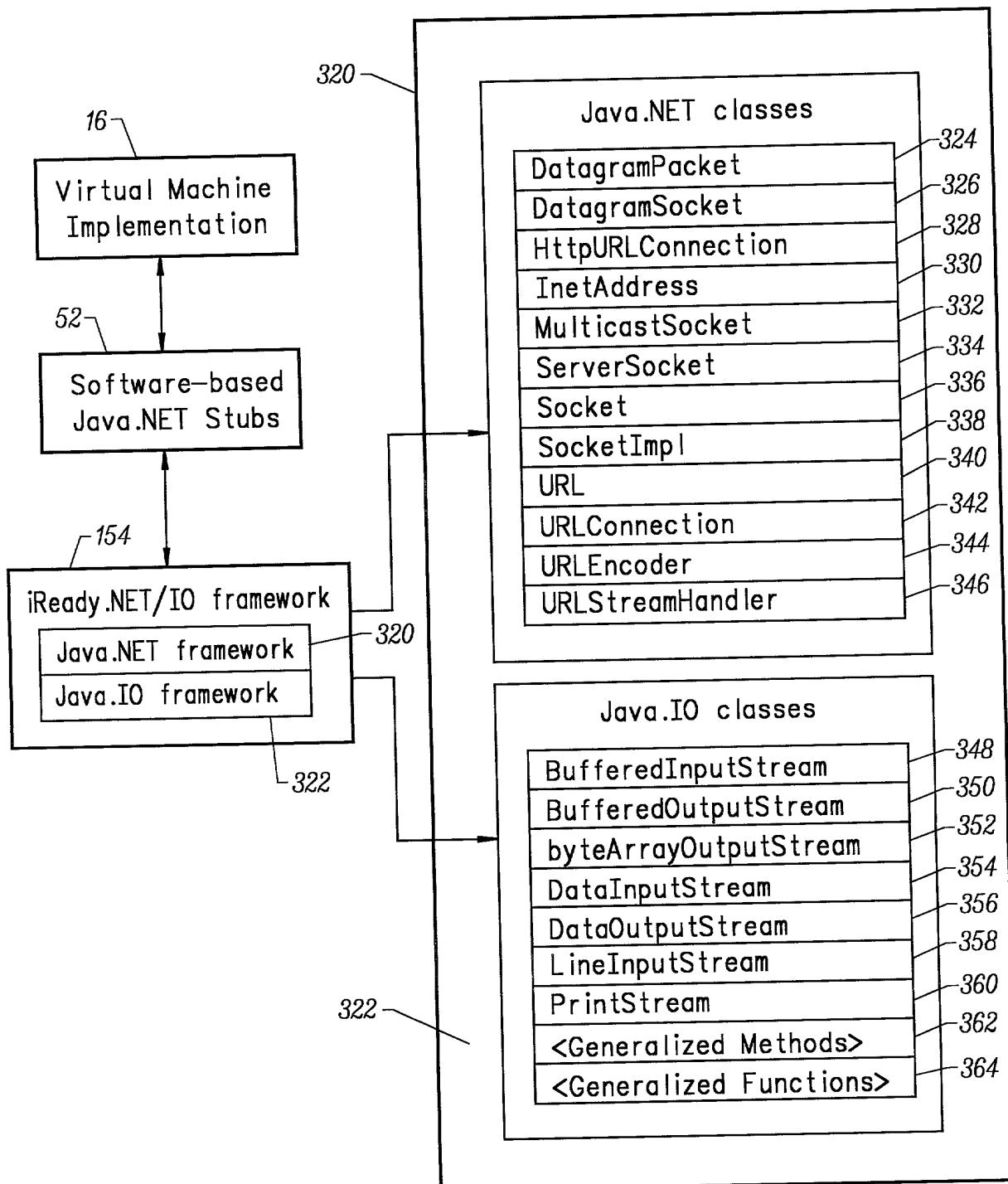


FIG. 19

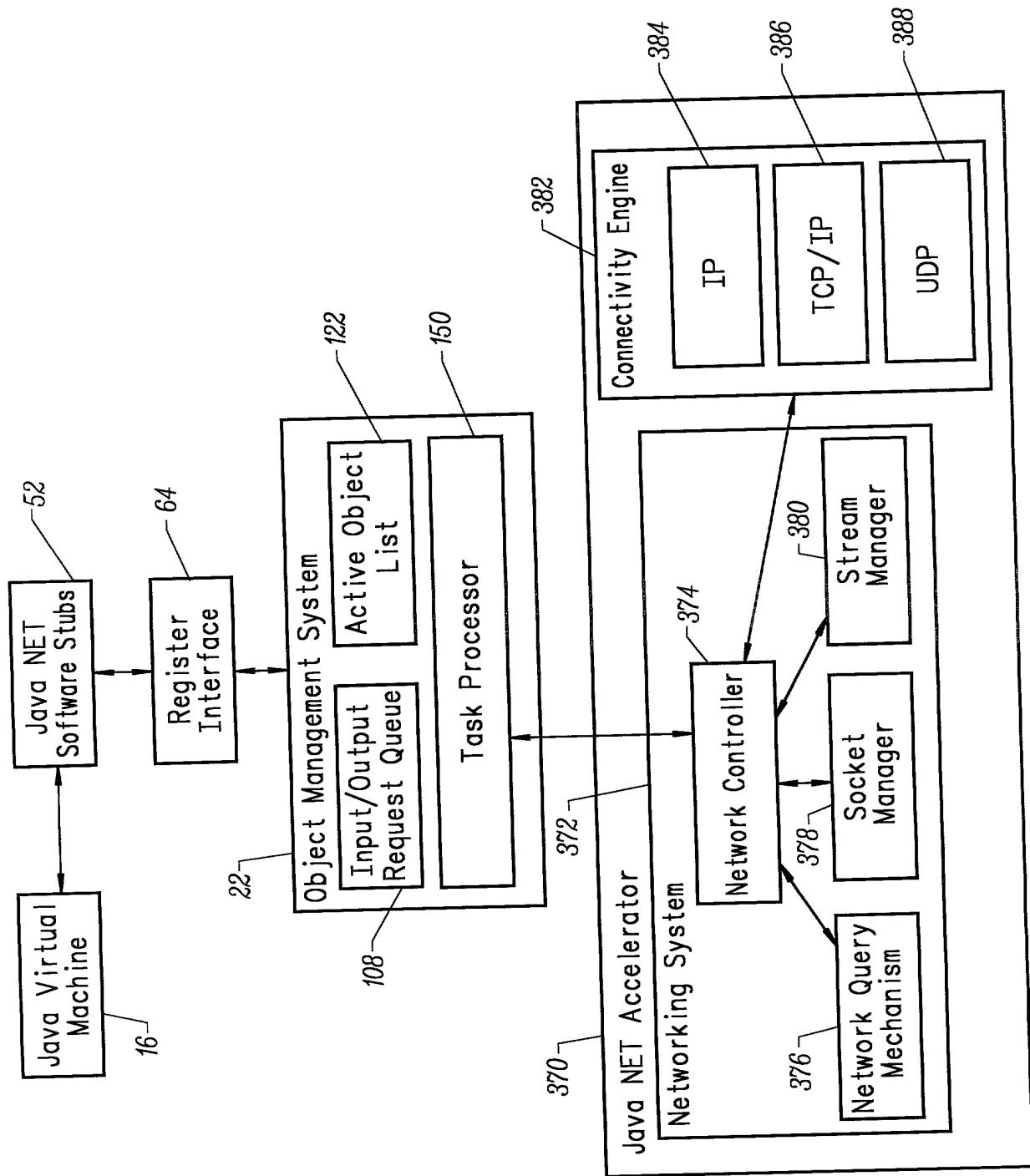


FIG. 20

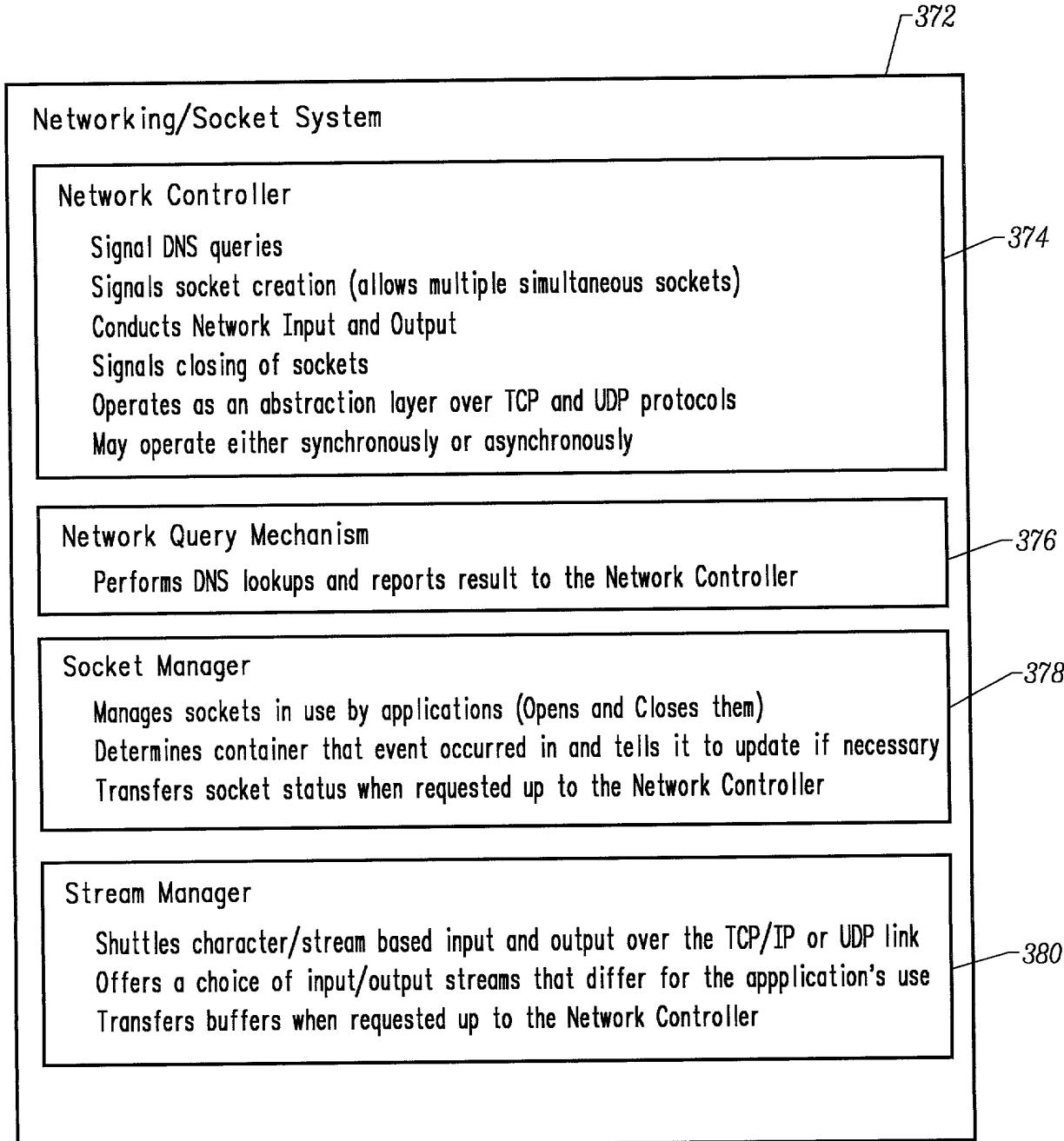


FIG. 21